



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/684,981

10/14/2003

Hiroyasu Inoue

890050.443

4729

500 7590 01/04/2007
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVE
SUITE 5400
SEATTLE, WA 98104

EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT

PAPER NUMBER

1756

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/684,981	Applicant(s) INOUE ET AL.	
	Examiner Martin J. Angebrannt	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/18/06 & 9/12/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-18 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-18 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/18/06</u> . | 6) <input type="checkbox"/> Other: _____ |

1. The response of the applicant has been read and made of record. The perfection of priority and cancellation of claims 1-14 and 19-20 have obviated a number of the rejections. Those of appearing in the previous office action, not repeated below are withdrawn. Responses to the arguments of the applicant are presented after the first rejection to which they are directed

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15,16 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uno et al. '239.

Uno et al. '239 in an example describes a polycarbonate substrate, a silica,-ZnS lower dielectric layer, GeCrON interface layer, a GeTeSb recording layer, a GeCrON interface layer, an AlON layer and a Au reflective layer. The sputtering process is also described. (14/ 62-15/65). The use of multilayered optical recording media is disclosed with respect to figures 7 and 8 and the text in column 17, but use a GeCrN interfacial layers. The use of Ti-O-N, Ta-O-N, Ge-O-N, Cr-O-N, Si-O-N,Al-O-N, Nb-N-O, Mo-O-N, Zr-O-N for interface layers 4 and 6 (8/21-46). The examiner notes that the GeTeSb layer is used with a 405 nm laser.

It would have been obvious to one skilled in the art to modify the first examples by adding another recording layer as shown in figures 7 and 8 to increase the information capacity of the recording medium and/or it would have been obvious to use other oxynitrides disclosed such as Ti-O-N, Ta-O-N, in place of the GeCrN interface layer used in the example with a

Art Unit: 1756

reasonable expectation of forming a useful optical recording medium based upon the disclosure of equivalence.

The applicant argues that the Uno et al references do not teach oxides with nitrogen added in the layers. This is without merit and the examiner points out that the specific disclosure of Ti-O-N, Ta-O-N, Ge-O-N, Cr-O-N, Si-O-N, Al-O-N, Nb-N-O, Mo-O-N, Zr-O-N for interface layers 4 and 6 which embraced the range of oxygen and nitrogen. Further, the nitride of Titanium is TiN and the oxide is TiO₂, so even if these were formed in equal amounts (TiN content equal to the TiO₂ content), the oxygen would be a larger percentage of the composition. The applicant is invited to show criticality for the full scope of coverage sought, specifically including the case where the recording layers are phase change layers. The rejection stands.

4. Claims 15,16 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uno et al. WO 02/2978 and Sakaue et al. '587.

Uno et al. WO 02/29787 teaches the use of Ti-O-N, Ta-O-N, Ge-O-N, Cr-O-N, Si-O-N, Al-O-N, Nb-N-O, Mo-O-N, Zr-O-N for the protective layers 3 and 7 ((14/1-10) and [0047] in the corresponding Uno et al. '069). The use of Ti-O-N, Ta-O-N, Ge-O-N, Cr-O-N, Si-O-N, Al-O-N, Nb-N-O, Mo-O-N, Zr-O-N for interface layers 4 and 6 ((14/19-15/4) and [0049] in the corresponding Uno et al. '069). Figure 3, shows an optical recording medium with two recording layers (103,203)

Sakaue et al. '587 teach the recording medium of working example 1, where Ta₂O₅ sputtered in a mixture of Ar and N₂ to form the barrier layer [0061] between the recording layer and the reflective layer. [0054-0062]. The use of other materials including GeON, SiON or AlON in place of the TaON is disclosed. [0068]. See also example 3, and the examples described

Art Unit: 1756

in table 3 [0079-0089]. The use of TaON yields a better signal amplitude, reduced corrosion and improved thermal conductivity (heat dissipation). [0072-0073].

It would have been obvious to one skilled in the art to modify the example of Sakaue et al. '587 by adding another recording layer as shown in figures 7 and 8 of Uno et al. WO 02/2978 to increase the information capacity of the recording medium and/or it would have been obvious to use other oxynitrides disclosed such as Ti-O-N, Ta-O-N, in place of the GeCrON interface layer in a medium corresponding to figure 3 of Uno et al. WO 02/2978 based upon the direction within Uno et al. WO 02/2978 and with a reasonable expectation of improving the performance characteristics based upon the disclosure of Sakaue et al. '587. The examiner holds that while the media are not optimized for 380-450 nm, the media are sensitive in that region due to the composition of the recording layers.

In addition to the basis above, the examiner points out that Ta₂O₅ is sputtered in nitrogen so the nitrogen content is that of an additive (reacting only with the surface of the sputtered Ta₂O₅ particles), not the dominant component in the teachings of Sakaue et al. '587 and that the applicant has not shown criticality for the full scope of coverage sought.

5. Claims 15-18 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuy et al. '160, in view of Sakaue et al. '587 and Takaoka et al. '321.

Shuy et al. '160 teach in embodiment 4, a medium comprising a polycarbonate substrate, a ZnS-SiO₂ layer, a transparent Si first recording layer, a reflective Si-Au second recording layer and a ZnS-SiO₂ layer. The ZnS-SiO₂ layers are thermal manipulation layers [0030]. The reflective recording layer may be Ag, Al, Au, Pt, Cu, In, Sn, W, Ir, Re, Rh or Ta [0027]. The transparent recording layer may be Si, Ge, GaP, GaAs, InAs, ...[0026].

Takaoka et al. '321 (US equivalent of JP 60-160036 cited by applicant) teaches optical recording media where the recording layer is a bilayer which is alloyed upon irradiation. Useful first layer materials are Ge, Te, Bi, Tl and alloys thereof and useful second layer materials are different from those of the first layer and may be selected from Te, Bi, Sb, Ag, In and alloys thereof. (2/49-63). Figures 9 and 10 show embodiments where there are two recording layers, which doubles the recording capacity of the media. (4/60-5/9).

It would have been obvious to modify the cited examples of Shuy et al. '160 by using Ta-O-N as thermal manipulation layers in place of the ZnS-SiO₂ layers with a reasonable expectation of improving the performance characteristics based upon the disclosure of Sakaue et al. '587 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

Further it would have been obvious to use Si or Ge for the first recording layer and Cu and alloys thereof with Al, Ag, Au or Sn for the second layer based upon the direction within Shuy et al. '160 to these materials and the direction within Takaoka et al. '321 to the use of alloys in each of the layers.

The addition of Takaoka et al. '321 addresses the multiple recording layer limitations set forth in claim 15.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined

Art Unit: 1756

application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 15-18 and 21-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4,9-20,22-25,30-44 of copending Application No. 10/406109 (US 2003/0190551) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/406109 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

The addition of Takaoka et al. '321 addresses the multiple recording layer limitations set forth in claim 15.

No terminal disclaimers have been filed and prosecution proceeds. The request to withdraw these rejections until the claims are allowed is improper as these are valid bases for rejection and the policy of the PTO is to present issues as early as possible in prosecution. When the claims are otherwise allowable, the applicant may chose to revisit this issue and provide proper terminal disclaimers.

8. Claims 15-18,21-26 and 29-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,3,5,7,9,13-15,17,,19,21,23,25,27,29,31,33,35,37-40,44-51 and 54-55 of copending Application No. 10/423686 (US 2003/0202452) in view of Sakaue et al. '587 or Uno et al. '239

It would have been obvious to modify the claimed optical recording media of 10/423686 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by formina a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

9. Claims 15-18,21-26 and 29-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-6,9-11 and 13-35 of copending Application No. 10/444172 (US 2003/0223351) in view of Sakaue et al. '587 or Uno et al. '239

It would have been obvious to modify the claimed optical recording media of 10/444172 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

10. Claims 15-18,21-26 and 29-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-40 of copending Application No. 10/425571 (US 2003/0231577) in view of Sakaue et al. '587 or Uno et al. '239

It would have been obvious to modify the claimed optical recording media of 10/425571 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

11. Claims 15-18,21-26 and 29-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5-8 and 13-21 of

copending Application No. 10/637407 (US 2004/0027973) in view of Sakaue et al. '587 or Uno et al. '239

It would have been obvious to modify the claimed optical recording media of 10/637407 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

12. Claims 15-18 and 21-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,5,7,21-23,30,31,33 and 35 of copending Application No. 10/608814 (US 2004/0038080) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/608814 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

13. Claims 15-18 and 21-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-31 of copending Application No. 10/748979 (US 2004/0152016) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/748979 by using Ta-O-N as the intermediate layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

14. Claims 15-18 and 21-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 10/717831 (US 2004/0110086).

It would have been obvious to use the dielectric layers described in claims 1 and 2 in the claimed optical recording media of 10/717831 including those using the Cu layer (cl 4) and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

Art Unit: 1756

15. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/818324 (US 2004/0202097) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/818324 by using Ta-O-N as the intermediate layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

16. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 10/808628 (US 2004/0191685) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/808628 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

Art Unit: 1756

17. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/764805 (US 2004/0157158) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/764805 by using Ta-O-N as the dielectric layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

18. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 10/613525 (US 2004/0052194) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/613525 by using Ta-O-N as the light transmission layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

This is a provisional obviousness-type double patenting rejection.

19. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 10/612615 (US 2004/0004932) in view of Sakaue et al. '587 or Uno et al. '239.

It would have been obvious to modify the claimed optical recording media of 10/612615 by using Ta-O-N as the light transmission layers with a reasonable expectation of forming a useful optical recording medium based upon the disclosure of Sakaue et al. '587 or Uno et al. '239 and further, it would have been obvious to modify the resulting optical recording media by forming a medium with two recording layers are included in a single medium structure to increase (double) the recording capacity as shown in Takaoka et al. '321 with a reasonable expectation of success based upon figures 9 and 10.

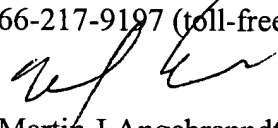
This is a provisional obviousness-type double patenting rejection.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1756

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J Angebrannndt
Primary Examiner
Art Unit 1756

06/15/2006